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In an investigation of maternal teaching styles, 162 mothers taught their children two cognitive sorting tasks. Maternal teaching variables examined included language, motivation techniques, ability to interpret child's responses, and success in giving appropriate feedback in return. The effects of teaching styles on children were also analyzed. Once the mothers understood the sorting tasks, they were given unlimited time to teach them to their children, although they were not supplied with methods. Task 1 required children to sort a group of toys by color and kind. Task 2 required block sorting by height, color and marking. Only 10 of the 162 children made perfect scores on the posttest. Results indicated that maternal variables of education, general intelligence, coercive or encouraging teaching styles, and ability to motivate affected the child's performance, as did his own intelligence, interest in the tasks, and attitude toward the mother. The most successful teaching styles showed specificity of language and organization and sequential presentation of material to be learned. The paper contains examples of positive and negative ways of motivating children and developing constructive or destructive attitudes toward learning. The research was conducted at the University of Chicago Early Education Research Center, one of the components of the National Laboratory for Early Childhood Education. (MS)

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PARENTS AS TEACHERS[1]

How Lower-Class and Middle-Class Mothers Teach

Robert Hess and Virginia Shipman

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[1]Taken from "Mother-Child Interaction" by Robert Hess, Stanford University, and Virginia Shipman, Educational Testing Service. The research was conducted at the Early Education Research Center, University of Chicago, a component of the National Laboratory on Early Childhood Education.

The material in this paper is based upon research conducted at the University of Chicago Early Education Research Center, one of the components of the National Laboratory for Early Childhood Education. Black mothers and children, both lower and middle-class, participated in the research. The findings are of interest not only to those who work directly with parents, but also to teachers. Hess and Shipman have identified teaching principles that can be just as effective in the classroom as in the home. The paper contains examples of positive and negative ways of motivating children, of developing constructive or destructive attitudes toward learning, and of talking to children so as to teach or not teach.

Celia B. Lavatelli

In most American families, the mother is the major socializing agent for her preschool child. Consequently, she contunually functions as a teacher in their everyday interactions, whether or not she is aware of her teaching role. Much of the implicit curriculum to which the child is exposed in his preschool years is conveyed by the communications he receives from his mother.

Mothers react differently to comparable socialization situations, attaching different meanings to them and consequently contrasting with one another in their responses to their children. However, even when two mothers react in the same way in attempting to communicate the same message to their children, they may still differ in their communication behavior and consequently have differential effects upon their children. They may teach the same content, but differ in their methods. They may be said to have different maternal teaching styles. Research was designed at the University of Chicago Early Education Research Center to study differences in teaching styles. Mothers and children were brought to the laboratory where each mother was to teach the same content to her child. The teaching situations were structured so that the information to be

conveyed to the child was constant for all subjects, but each mother was free to use any means or techniques she desired in attempting to convey it.

The interactions revealed striking differences in the way mothers attempted to teach the same basic message or skill to their children and in their relative success in doing so. In attempting to account for these differences, we have examined a number of maternal teaching variables including language (variety, organization, and relevance), motivation techniques (methods used in attempting to get the child to want to learn or to be prepared to learn), ability to interpret the child's responses, and success in giving appropriate feedback in reaction to those responses. Effects observed in the children were also measured and were analyzed in relationship to the various maternal variables.

Differences among mothers in these teaching variables not only affect the degree to which the children learn the intended message or meaning, but also affect their motivation in the learning situation and the kinds of learning strategies or habits they develop. Although some of the latter kinds of effects may be extraneous or even antithetical to a mother's intent as she teaches her child, they may occur as direct reactions to the way in which she teaches.

Mothers attempting to teach their children in deliberate instruction situations differ considerably from one another in the kind of techniques that they use and the degree of success they achieve. This variety is

partially due to differences in education, intelligence, and general experience which cause the mothers to differ in their repertoire of abilities in communication skills. These general factors tend to limit the range of techniques available to each mother, although many other factors are involved in determining the specific behavior which she uses in a given interaction with her child.

Many of the maternal communication variables studied are aspects of the information transmission or teaching. This aspect of mother-child communication has been given relatively little attention in previous research, but it is a primary focus of the present investigation. Consequently the mothers were coded on such variables as language specificity, completeness and clarity of presentation, and the sequential ordering of messages and concepts presented. Other aspects of information transmission involve the mothers' attempt to obtain feedback from the children and their own subsequent confirmatory or corrective feedback responses to the child.

In addition to the information transmission aspects just described, the behavior of mothers in interaction with their children will also differ in the affective sphere. Previous studies have ordinarily been based on mother-child interaction in an unstructured, free play situation. Our mother-child interactions were deliberate instruction situations in which the mother had to exercise considerable control over the child's behavior and in which the constant face-to-face interaction was likely to

increase the general intensity of affect. Consequently the warmth and control in these interaction situations do not have quite the same meaning as they do when applied to general parental behavior in the home. The second major consideration differentiating the present research from earlier ones is our emphasis on the information transmission aspects of the mothers' communication. In effect we are adding a third major dimension in our factor of maternal behavior, studying it not only in its own right but in its interaction with the other two. Thus maternal control is not merely a matter of permissiveness vs. strictness. It is approached as a complex factor which includes both quantitative (to what degree does the mother obtain compliance with her wishes?) and qualitative (what methods does she use in attempting to do so?) aspects. In the teaching situation, in fact, the mother must usually do more than obtain compliance by controlling the child in the usual sense of the word; she must instill a positive attitude of cooperation and interest in learning in the child. She must motivate rather than merely control the child, and much of this is accomplished through behavior more closely identified with information transmission and warmth than through control as it is traditionally used. In the realm of maternal warmth, the deliberate instruction situation raises the question of the degree to which the mother ties in her affective responses to the child's achievement in learning the task. The affective responses of some mothers toward their children may vary little from situation to situation, while other mothers may

vary their affective response to the child according to his success and cooperation. Affective responses may also have information transmission aspects, since a given expression of warmth or hostility may also provide information (feedback) and reinforcement when it follows the task response of the child.

Important differences also occur among the children. Factors such as intelligence, interest in learning, and attention span make for differences among the children in their readiness for the task, and other factors appearing during the task itself affect the speed and completeness with which the child is able to learn it. Three separate situations were used. These included a relatively easy cognitive sorting task, a more difficult sorting task, and a task involving the copying of geometric designs. The tasks required each mother to teach the same content but allowed the mother complete freedom of time and method.

Prior to teaching, the mothers were familiarized with the task in an informal, somewhat redundant approach designed to make certain that they clearly understood the task but at the same time designed to avoid giving them any specific model to copy in teaching their child. Once the mother had learned the task she was asked to teach it to her child, and was specifically instructed to use any method and to take as much time as she desired.

In the two cognitive sorting tasks the mothers were asked to teach their children to sort objects in specific ways and to explain the sorting prin-

ciples or reasons for the resultant groupings. The first was a toy sorting task involving three kinds of toys (trucks, spoons, and chairs) represented in each of three colors (red, yellow, and green). The mother's task was to teach her child to divide the toys into three groups by each criterion, kind of toy and color, and to be able to verbalize the reasons for these groupings ("These are all chairs," "These are the same color," et cetera).

The next task was a more difficult block sorting task in which the mothers had to teach the children how to sort blocks into four groups using two criteria simultaneously. The blocks differed according to four attributes: color (red, yellow, green, and blue), shape (rectangular or circular crosssection), height (tall or short), and mark (X or O painted on top of the block). The children were to learn to group together blocks which were the same height and were marked with the same mark and to explain the reasons for these groupings. This required the formation of four groups of blocks, each of which was internally consistent on the two criterion variables but not on the other two variables. The four groups were composed of tall blocks marked X, short blocks marked X, tall blocks marked O, and short blocks marked O, respectively.

The mother was taught each of the sorting tasks while the child was out of the room and then, after she had learned it, was instructed to teach the child to sort the blocks correctly and to verbalize the sorting principle. The mothers were oriented to the task with a method developed to avoid suggesting particular teaching methods or terminology. They

were allowed to use whatever labels for the variables that they verbalized spontaneously while being taught the task ("O," "circle," "zero," "goose-egg," et cetera). Task teaching was continued to overlearning criteria to insure that the mother knew the task and was not likely to become confused later when teaching the child.

The difficulty levels of the tasks were such that appropriate and useful interaction could be obtained from the entire range of subjects. Although there were differences among the children in their degree of familiarity with the task materials and in their repertoire of labels for the attributes involved, the tasks themselves, sorting into groups and explaining the sorting principles, were unfamiliar to all subjects.

The task facing each mother was the same, that is, to teach the child to sort the toys appropriately and to explain the reasons behind the sorting. However, each mother entered the situation with her own unique background and approach to the task and with a particular history of interaction with her own child. The instructions given to the mother served only to set her goal -- to tell her what she was to achieve. The means of achieving that goal, the way in which she taught the task to the child, was left entirely up to her.

The mother's ability to communicate specific meanings was crucial in these two tasks, since the child knew nothing about them and had to depend entirely upon the messages he received from her. This placed a

considerable burden on the mothers since their task was clearly defined but the way in which they were supposed to go about it was not, and since they could expect little help from their children, at least in the beginning. It was clearly up to the mother to engage the child's interest in the task and to impart the information that he needed to know in order for him to participate more actively. Because the child could not participate actively and intelligently until he had acquired a certain amount of task-relevant information from the mother, the mother's communication skills were of crucial importance in the cognitive sorting tasks.

The teaching of many mothers was poorly organized or incomplete during this crucial period of introduction of basic information, so that their children participated only in a passive way or else began to resist the task early. In these dyads the interaction was for the most part one-way -- from mother to child. The mother kept attempting to get desired responses from the child but met with little or no success. Other mothers who were able to transmit the necessary basic information to their children early in the task usually settled into a more balanced or complementary interaction in which the child participated more actively, asked questions, made relevant comments, and generally showed evidence of self-motivation over and above that provided by the mother.

The information transmission aspects of maternal teaching were evaluated for specificity (clarity and precision in specifying the intended meaning). Specificity is construed as a continuous variable, having both

verbal and nonverbal aspects, which is present in all communication. Different degrees of specificity in both verbal and nonverbal aspects are shown in the following series of examples, all of which are possible maternal responses to a mistake in block placement by the child:

1) "That's not right."

2) "What about the mark?"

3) "No, those are O and that's an X."

4) (Mother retrieves block and points to mark:) "No, this has an O . . . see? You have to find some more with O."

5) (Mother points back and forth between the erroneously placed block and the other blocks in the group:) "No, see. . .this one is an O and those have X."

6) (Mother points back and forth between the erroneously placed block and the other blocks in the group:) "No, see, this has O and these have X. We don't want to mix up the O's and the X's, so you have to put this block where there are some other blocks that have O on them, too."

The data in the Chicago study clearly show that the more successful mothers, in addition to being more specific in their teaching, tended to rely on praise and engagement rather than coercion as their means of motivating the children. Although an equivalent amount of regulation of the child's overt behavior can be achieved through either method, differences in method may be expected to have contrasting effects upon the child's internal subjective state. The mother who motivates through praise and engagement provides an inducement for the child to participate in the task and follows this up with encouragement and praise which tend to make the task a pleasant experience for him. In contrast, the mother who confines herself to criticism and coercive control encourages the development of an avoidance orientation in the child and in effect makes the task itself a punishment.

concerning their effects on the children may be derived from them. Mothers who attempt to motivate the child through engagement and presentation of information are usually person-oriented in their appeal, and their statements are usually instructive as well as motivating. Mothers who rely on coercive control, on the other hand, are usually confined to imperative commands appealing to status-normative rationales. Illustrations of these differences are provided in the examples below. Each pair of examples represents contrasting maternal behavior in response to the same antecedent situation. The examples in the left column involve the use of engagement and presentation of information, while those on the right are confined to coercive control and criticism.

1a "I've got another game to teach you.

1b "There's another thing you have to learn here, so sit down and pay attention."

2a "Now listen to Mommy carefully and watch what I do because I'm going to show you how we play the game."

2b "Pay attention now and get it right, 'cause you're gonna have to show the lady how to do it later."

3a "No, Johnny. That's a big one. Remember we're going to keep the big ones separate from the little ones."

3b "No, that's not what I showed you! Put that with the big ones where it belongs."

4b "That doesn't go there -- you're just guessing. I'm trying to show you how to do this and you're just putting them any old place. Now pick it up and do it again and this time don't mess up."

4a "Wait a minute, Johnny. You have to look at the block first before you try to find where it goes. Now pick it up again and look at it--is it big or small? ...Now put it where it goes."

5b "Now you're playing around and you don't even know how to do this. You want me to call the lady? You better listen to what I'm saying and quit playing around or I'm gonna call the lady in on you and see how you like that."

5a "No, we can't stop now, Johnny. Mrs. Smith wants me to show you how to do this so you can do it for her. Now if you pay close attention and let Mommy teach you, you can learn how to do it and show her, and then you'll have some time to play."

The above examples are typical of the maternal statements observed in the interaction tasks. They were chosen to represent contrasting maternal reactions to the same basic stimulus on the part of the child. The difference in appeal (instructive vs. imperative; person vs. status) is one of degree, being sometimes quite obvious and sometimes very subtle. For each pair of examples, however, the statement in the left column is superior to the one in the right column in one or more of the following ways:

1. It is more conducive to the consideration of alternatives for thought and action

2. It represents an appeal to logical contingencies or personal considerations rather than an arbitrary exercise of power.

3. It presents the task as desirable, either as an end in itself or as a means to a desired end, rather than as a chore or an arbitrary demand made upon the child.

4. It places the mother in the role of a supportive sponsor or helper rather than an impersonal or punitive authority figure.

5. It defines the situation as a cooperative venture in which the mother has some responsibility rather than as something that involves the child alone.

6. It specifies immediate means rather than merely repeat ultimate goals.

7. It connotes cooperation, affiliation, and positive expectation of success, as opposed to conflict, withdrawal of positive regard, and emphasis on failure.

Despite the desirable effects that these techniques might be expected to have upon the children, most of the mothers made relatively little use of praise and engagement. Mothers of different education and background

differed very little in their relative use of coercive control, but the middle-class mothers were the only social status group to praise their children or attempt to engage their interest in the tasks with regularity. In all four social status groups the use of coercive control exceeded the use of engagement techniques. However, among middle-class mothers the difference was very slight, while among lower-class mothers the frequency of engagement was far below that of coercion.

The data on maternal motivation techniques appears to provide part of the explanation for the high rate of teaching difficulty and undesirable child behaviors observed in the interactions. The majority of mothers made relatively little attempt to elicit the child's interest through positive engagement, but instead were apt to react to problems by attempting to force compliance through coercion. In view of this it is easy to see how any initial positive feelings about the task that the child may have had would become quickly dissipated and replaced by a failure-avoidance orientation, especially if coercive control were combined with poor teaching so that successful learning was made difficult.

In a few extreme cases observed in our sample, attention was confined almost entirely to the physical or block-placement aspects of the task, with little or no emphasis given to the sorting principle. In such cases the mother's method was to demonstrate block placement for the child and then to ask him to do it himself, giving feedback and continuing this practice until the child had learned where each block went. Specific labels in the

feedback, when they occurred at all, tended to be given in an off-hand manner which did not clearly indicate the importance or relevance of the attribute. For example:

> "I have some blocks here and you have to learn how to put them where they go. Watch me now so you'll learn how to do it. See, this one goes here, and this one goes here, and this one goes here with the big ones, and this one goes here. See how they go now? These are all the same, these are all the same, these are all the same, and these are all the same. Can you do that now for Mommy? Let's see you do it for me. . . . That's right. . . . No. . . . No. . . . That ain't right. It goes here with the big ones. . . . No, over here. . . . Ok. Can you do that again?"

The preceding example demonstrates the kind of teaching that resulted when the mother made no attempt to specify the relationship between the attributes of the blocks and the physical act of sorting them into separate groups. This is comparable to the situation in which a programmer would ask the machine to divide a deck of cards into subgroups without telling it which columns to scan as the basis for separation into groups. The machine would be unable to interpret such instructions and would not act on them. Children, however, can and do react, at least to that portion of the instructions which they can understand. To a degree this is an advantage for a mother with a primarily reactive teaching style, for if the child begins responding and making errors, the mother may see that he does not understand the task and may try to correct him. In the process of correction she often may fill in the gaps in her teaching program so that the child can make the connection between the attributes of the blocks and the sorting principle and conceivably learn the task, although by a

long and disorganized trial and error method.

This "do as I do" approach, however, with its emphasis on the placement responses at the expense of discussion of the sorting principle, can cause the child to view the task as a guessing game or a rote memory exercise. Problems also arise if the child is successful in learning where to place the blocks, since this may cause the mother to assume mistakenly that he has mastered the sorting principle and will be able to generalize it to new blocks. Even where this does not happen, a mother who starts out with this reactive style may encounter difficulties later when she tries to teach the sorting principle.

Optimal maternal communication implied high levels of specificity in all areas previously discussed, in both labeling and focusing behavior. This included not only orientation and feedback but also pre-response instructions, where specificity occurred least frequently. It also implied a preference for eliciting the child's interest in the task through engagement and for maintaining it through encouragement and praise. An additional element, not specifically discussed previously, was sequential organization. Ideally the mother would proceed in a step-by-step process, introducing sub-parts of the task first before requiring the child to make responses which assumed prior knowledge of those sub-parts. An idealized example of this kind of teaching is presented below, along with interpretative comments analyzing the functions of each step.

Maternal Behavior	Interpretation
"Hi, Johnny. Sit down here by Mommy because I've got something to show you. It's a game that you play using these blocks here. There's a special way that you can put blocks together in different groups here on the board. I'll show you how to do it, and then you can show Mrs. Smith (the tester) when she comes back.	With these few brief remarks, the mother manages to: 1) greet the child warmly, 2) give the child a general overview of what is to come without getting into specific details, 3) describe the task ("game") in a positive manner, connoting that the child will enjoy it, 4) refer to the post-task test in a way that suggests that it is an opportunity for the child to show off his knowledge to a known person, rather than picture it as an arduous trial conducted by a feared authority figure, and 5) subtly but consistently stress the importance of the sorting rationale (that is, the task involves learning a method which will tell <u>how</u> to sort the blocks, as opposed to a task requiring the child to learn <u>where</u> to put the blocks).
"Ok?	This simple pause in the teaching has several functions: 1) it provides a check on the child's attention and cooperation.

(Maternal Behavior)

"All right, now there are two things about the blocks that you have to remember. You have to look at the size of the block to see whether it's tall or short, and you have to see what kind of mark the block has on it. Now look at these two blocks (placing a tall and a short next to each other). This one is bigger than

(Interpretation)

2) It allows the child to express any objection to the task itself or interests in non-task activities which are competing with his willingness to attend to the mother. If the child does have objections or competing interests, it is important for the mother to deal with them at this point, before the introduction of formal teaching, since teaching will proceed more smoothly if the child is interested and cooperative.
3) It allows the child to ask questions which will enable the mother to clarify or expand on some part of her remarks.

This example represents a highly organized presentation of the relevant attributes, with high specificity both in verbal labeling and in focusing behavior. The mother begins by stating the relevance of what is to come to the ultimate goal of the task, that is, that the child needs to know the two things that she is about to teach him in order to know how to group the blocks. However, she avoids

(Maternal Behavior)

this one, isn't it? This one is tall, and this one is short (putting hands over tops of the two blocks and moving hand back and forth). Now look at the other blocks. Some of them are tall like this one, and some of them are short like this one. What about this block? Is it tall or short?. . .Right. And this one? . . .Fine.

(Replacing the other two blocks and getting two blocks of contrasting mark:) "Now the second thing we have to look at is the mark on the blocks. Notice each of these blocks has a white mark on each end (showing each end of the blocks to the child). Now this block has those two crossed lines there (tracing with finger), see? Now what do

(Interpretation)

overwhelming the child by trying to put them all together at once, and instead confines herself to introducing the relevant attributes.

To further simplify the presentation she introduces the attributes one at a time rather than in combination, and she presents each term with specificity and a certain amount of redundancy before requiring the child to use it himself. She does, however, require the child to produce labels, getting specific feedback from him rather than simply assuming that he has understood, and she affirms each correct response as it appears.

To make sure that the child is attending to the appropriate aspects of the blocks, his mother asks him to label blocks that she has not already discussed. Her periodic seeking of feedback allows the child to assume the role

(Maternal Behavior)

we call that mark? We call that an X. That's an X. Now this block has a round mark on it (tracing), and we call that an O. That's an O. So this one is X and that one is O. What are they now? . . .Right. And what's the mark on this one here?. . . Ok, and this one? . . .Right.

"Now when we divide up the blocks into groups, we have to see whether they're tall or short and whether they have X or O. The blocks in each separate group should be the same size and should have the same mark on top of them. Now look at this group. Both of the blocks are tall, not little like these other ones here and here -- they're both tall and they both have the same mark on top. See (pointing) -- they both have X. Now that's why

(Interpretation)

of an active participant rather than of a passive listener. The order and specificity in the presentation maximizes the child's chances of learning quickly and easily, which in turn maximizes the likelihood of successful response and positive reinforcement rather than failure and negative reinforcement.

In this sequence the mother first shows how the blocks in each group already formed on the board have the same height and mark, and then goes on to demonstrate the method of placing the blocks. Throughout the presentation she consistently emphasizes both similarities and differences among the blocks and carefully specifies the relationship between the attributes of height and mark and the basis upon which the groups are formed. In demonstrating sorting she operationally describes each step so the child sees that the actual placement is the end result of

(Maternal Behavior)

they go together, because they're both tall and they both have X on top. Now look at this group; these blocks are both tall, too, but they both have O on top, so they go by themselves -- they're tall with O (pointing).

"Now the blocks in this group go together because they're both short and because they both have (showing the ends of the blocks to the child)? . . .X, right. And the blocks in the last group go together because they're both (holding hand over tops of blocks)? . . .short, and they both have (showing ends of blocks to child). . .O, right.

"Now that's what we have to know when we put these extra blocks into their groups on the board. The blocks in each group should be the same size and they should have the

(Interpretation)

a series of decisions based on evaluation of the similarities and differences among the blocks.

By thus operationalizing the sorting process, the mother can help the child to see the end result as a natural outcome following a series of understandable, goal-oriented steps, and not simply as a *fait accompli* to be accepted but not understood. This is an important consideration, because Piaget (1951) has shown that a child of this age will not ordinarily ask how an adult is able to do such a thing, or seek a logical, operational explanation. He may, however, accept the assertion that the block does indeed belong in the group that the mother says it belongs in, taking this as a fact which requires no explanation or which is ascribed to magical properties thought to reside in the mother or the stimuli themselves. Mothers who failed to verbalize the

(Maternal Behavior)

same mark on top. Now this block is tall and has an X on top, so I want to find some other blocks that are tall and have X on top to put it with. This group has tall blocks and both have X (pointing) just like the block in my hand, so that's where it goes.

"Now look at this block. It's a short one and it has an O on top (pointing). Now we want to find the group that has the same size and the same mark on top.

(Placing block with tall O's:) Now these blocks have O on top, but they're big ones and this one is a little one, so it couldn't go there.

(Placing with small X's:) These blocks are the same size -- they're both small -- but they have X's on top, so the marks aren't the same (pointing), so it can't go there

(Interpretation)

logical operations behind the sorting process often unwittingly encouraged this kind of response in the children, especially if in addition they neglected to ask the child to explain the reasons for placement on his owr.

(Maternal Behavior)	(Interpretation)
either. Placing with short O's:) But these blocks are both short and they both have O on top, just like the one in my hand. So that's where it goes--it goes with other blocks that are short and have O on top."	
Mother continues in similar fashion for the other two blocks.	
"Now do you want to try it? . . . Ok, I'll take a block out of each group and we'll let you put them back where they go. (Mother removes a block from each group and hands one block to the child:) Now remember, we want to fix them so that the blocks in each group are the same size and have the same mark on top.	This sequence represents a continuation and extension of the same principles illustrated in the earlier ones. Before definitively concluding her demonstration and moving on to the first placement response, the mother consults the child regarding his willingness to try placing the blocks himself. This provides a check on the child's motivational state and in addition gives him an opportunity to express confusion or to seek further information or demonstration.
"Now look at this block -- is it tall or short? . . . Ok, and does it have an X or an O on it? . . . Right, so we want to put it in	After eliciting the child's consent, the mother then moves on to the placement

(Maternal Behavior)

the group that has short blocks with O on them. Can you find that group? (Child places block with short X's.) Well, those are short, all right, but what about the marks? Look at them -- is the mark on this block the same as the mark on those two blocks? No -- those are X's. So you have to find the group that has short blocks with O on top. . . . That's right -- fine. Now the blocks in that group are all short and they all have O on top.

Now how about this block. Is it tall or short? . . . Ok, and what mark is that? . . . Fine, now can you find the group that has tall blocks with X on top? . . . Good. Now why does that go there, Johnny? It goes there because these blocks are all tall

(Interpretation)

unit, although not without giving him considerable additional help before allowing him to actually place a block. She first restates the sorting principle in the form of a global description of the task, and then follows through with specific instructions concerning the first block. All of this helps the child to respond correctly, but more importantly it stresses the cognitive operations which the child is to pursue. The emphasis throughout is on processing of the blocks before placement and verbalization of the sorting principle after placement. The demands made upon the child are gradually increased at a rate corresponding to his increasing ability to cope with them.

The mother regularly provides immediate affirmation or negation after each response, although her responses to errors are problem-centered and in-

(Maternal Behavior)	(Interpretation)
and have what on top? . . . Right."	formative rather than critical. Her general role is that of a friendly helper rather than an impersonal or critical evaluator.
Mother continues in a similar vein, although as the child's knowledge becomes more secure, she gradually reduces the frequency of prompting in specific instructions and gradually increases her attempts to elicit this material by questioning the child until eventually he is able to sort and to verbalize the sorting principle correctly on each trial.	

The preceding example of maternal teaching, particularly if read from beginning to end without attention to the interpretative comments, may not seem particularly noteworthy or impressive. It has a natural, almost familiar quality which tempts the reader to think, "Well, that's about how I would explain it myself." In a sense this reaction is perfectly valid, since the presentation appeals to common sense as a straightforward way of presenting the block sorting task which involves no unusual didactic techniques or specially prepared equipment. Most, if not all, of the principles discussed and illustrated are well know, appearing routinely in works on teaching and learning. This simplicity is more apparent than real, however, since teaching which approached the ideal outlined above was very rarely observed in this research. Paradoxically, the example seems simple partly because

of its high clarity, specificity, and organization. It is so easy to follow that it makes the learning of the task itself seem easy. However, for the mothers in our study, who had to teach it to their children without benefit of previous discussion and analysis, the task proved to be quite difficult. Despite the fact that no time limit on teaching was imposed, only 10 of 162 children received perfect scores on the post-task test.

Since each of the mothers knew the task herself, at least well enough to meet our criteria, why were there such gross differences among the mothers in their ability to communicate it to their children? Part of the answer, of course, is that mothers differed in general intelligence, academic education, and breadth of experience which made them relatively more or less well-prepared for the task. The past history of interaction between the mother and her particular child was also important, since the mothers presumably differed in their experience in teaching children and the children differed in the degree to which they would be willing to cooperate in such a task. Two additional factors which appear to be related to the observed differences are the mothers' abilities to abstract the essentials of the task and encode them in language, and to interpret and respond to the behavior of the children. The best teaching was distinguished from that which was adequate but less ideal primarily in the careful organization and sequencing of the presentation. It is likely that mothers who taught this way were able to make an implicit or even explicit task-analysis of the situation, abstracting the essentials into an orderly sequence of sub-

parts leading to an ultimate goal. Many mothers presented all the essentials in adequately specific language but lacked this kind of organization, so that they frequently had to backtrack or present new information as it became evident that the child did not completely understand them.

The teaching of some mothers reflected a failure to understand the child's needs and limitations. This was evident in many ways, such as in failures to give orientation to the child or to attempt to gain his positive interest in the task, in failures to explain terminology or to supplement verbal presentation with nonverbal focusing, and in failures to properly interpret the actions of the child. The latter difficulty is inferred from observation of maternal reactions to behavior such as non-meaningful and spuriously successful placement, which often were not recognized as such by the mothers. Some mothers allowed the children to establish a pattern of going from group to group until they reached the right one, or of placing the blocks quickly without giving any verbal labels, and made no observable attempt to break it. Such mothers seemed to simply project their view of the task onto the child or to assume that he was following the presentation and conceptualizing the task the same way they were without attempting to test out this assumption.

Sometimes the mothers provided direct evidence of their own failure to properly interpret the children's behavior. Examples include those mothers who were surprised and dismayed to find during the test period that their children (previously coded for spuriously successful placement) were unable

to place test blocks correctly. Other mothers handled inhibition poorly because they were unable to accept the child's protestations of ignorance, apparently believing instead that the child really knew how to put the blocks where they went but for some reason was unwilling to do so. Failure to distinguish between process and performance in block placement was often evident in mothers whose children were coded for non-meaningful placement, as when the mothers made comments such as, "Now I thought you knew that one, Johnny -- you got it right the last time."

Before discussing differences among the social status groups, some additional comments about the mothers should be made.

In discussing failures in communication in the mothers' teaching, it has been stated or implied that poor teaching has undesirable effects on the children. It is important, however, to carefully distinguish between the mother's motives and intentions on the one hand and her actual behavior or performance on the other. The differences among mothers were primarily differences in means rather than ends or goals, since presumably the major goal of every mother in the interactions was to teach the task as we had requested her to do. It is also assumed that every mother, if questioned about the matter, would have stated her intention to make the task pleasant and enjoyable for her child in addition to making it a learning experience. Under these assumptions, then, the frequency of learning difficulties and undesirable reactions on the part of the children are considered unintended and unwanted by the mothers, resulting from inadequate

communication skills rather than from any deliberate callousness or rejection of the child. Omissions and inadequacies are felt to have resulted from the fact that more desirable and effective methods simply did not occur to the mothers (limited repertoire in the proactive aspects of communication), or that the need for them was not perceived (inadequate reactive responses due to failure to recognize or interpret the process aspects of the children's responses). The net result of such communication, however, is that the ineffective mother not only fails to implement her goals but also unwittingly creates undesirable side effects.